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ABSTRACT

Although limited finances and a student body of 3,200 have made it necessary to be selective in acquiring educational technology, the Plainfield (Illinois) Community Consolidated School District No. 202 has been very active in the regional partnership for excellence. Curricular programs at the Plainfield High School include use of computer-assisted manufacturing (CAM) and computer-assisted design (CAD) systems for projects in vocational education, a computer literacy course in microcomputer applications, a computer programming course, a computer-assisted writing laboratory, and computer-assisted instruction in physics, chemistry, and band. Divisional chairpersons also use microcomputer programs for curricular work, budget preparation and monitoring, and daily operations. The high school library media center uses video programs to provide curricular support and to provide access to "The Electronic Encyclopedia" and the "Video Encyclopedia of the Twentieth Century." In addition, the media center participated in the "News Access" pilot project with Turner Broadcasting, which provided cable network news programming for classroom use. Educational technology is also being used by the school district's support services and administrative offices, as well as by extracurricular groups such as The Computer Club, the athletic teams, the band, and the school newspaper and yearbook. Finally, the Southfield School District cooperates with the Tri-County Education Service Center, a regional center serving 48 districts, in computerized test scoring, test question generation, software previews, and pilot projects. Six school and service center officials who can provide additional information are listed. (EW)

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Comprehensive Technology Utilization Leading to Excellence in Medium Sized Schools

A Presentation by

Plainfield (Illinois) Community Consolidated
School District No. 202
and
Tri-County Education Service Center

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for the National School Board Association
Institute for the Transfer of Technology
at the Infomart, Room 1059, Dallas, Texas
November 5, 1987

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FORWARD

Plainfield School District 202 is located 45 minutes southwest of Chicago and 15 minutes south of the Illinois High Tech Corridor. The District is very active in the Corridor Partnership for Excellence. Next week, for example, the Superintendent will be making a presentation at Illinois State University as a representative of the Partnership. Our 3,200 students represent a cross section of middle class with approximately 40% of the parents in professional occupations and 60% in service professions or industry.

In 1984, the Plainfield School District Board of Eduction was honored by the Honorable Terrence Bell and the U. S. Office of Education as one of the 17 outstanding in the nation in connection with the report "A Nation At Risk". The seven members of the present Board of Education include a dentist, an attorney, an environmental scientist at Argonne National Laboratory, a chief physicist at Fermi National Laboratory, a head chemist at an Amoco Oil processing plant, a management employee based at Illinois Bell's offices in Chicago, and a retired bookkeeper. Their offices outside Plainfield include Chairperson of the Large District Council of the Illinois Association of School Boards, Chairperson of the WILCO Area Career Center, and Chairperson of the Three Rivers Division of the Illinois Association of School Boards.

The School District has received numerous awards which include Commendation by Instructor Magazine and Houghton-Mifflin

Corporation as one of 32 districts honored for significant community partnerships; recognition by the Illinois House of Representatives and by The Community Relations Report for the initiation of a Saturday Scholars Program for gifted students; and the Certificate of Achievement for Excellence in Financial Reporting presented by the Governmental Finance Officers Association of the United States and Canada.

The community represents a blend of small town and suburban living and is adjacent to the fastest growing school dist. cts in Illinois.

INTRODUCTION

Our efforts to effectively incorporate educational technology might be termed "one step behind". As a school district of 3,200 students with limited finances, we must be selective in the technology we acquire. Both our size and fiscal resources preclude widespread participation in costly pilot projects. For that reason, we believe it very important to maintain membership in organizations such as this Institute for the Transfer of Technology to Education. Conferences such as this provide us with the opportunity to evaluate state-of-the-art technology projects just after the pilot stage, and then incorporate those that closely match our educational goals and give promise to improved student success.

This does not mean, however, that we do not participate in pilot projects. Last year, for example, we were one of 32 districts piloting the Turner Broadcasting System; this year we are involved in a test scoring pilot; and next year we will be in a network project and a foreign language project (all of which will be discussed today). Programs selected for pilot are closely related to educational goals.

In fact, the major factor in our decision to utilize any technology is whether it will lead to either increased learning or more efficient learning. This presentation will focus on the present and the future. We intend to return to Illinois with new ideas gained from you and trust that some of you will, likewise, profit from our presentation. The order of presentations will

proceed from the most important component -- classroom instruction outward to media enhancement of learning, school support services, district support services and vocational alternatives, and finally regional support programs available to Plainfield students and staff.

CURRICULAR AREAS: PLAINFIELD HIGH SCHOOL

Computer Assisted Manufacturing/Computer Assisted Design

The terms CAM/CAD are used whenever computerized systems for manufacturing and designing components are used in the production of goods. In 1985, Plainfield High School students were exposed to CAM by using the computer to create one small part on the lathe. Now a complete CAM class is taught each semester consisting of a wide variety of activities to more thoroughly study this subject. In order to write the program for the part, students use math functions and applications appropriate to get the task completed. Some functions will include as many as 200 mathematical steps which will in turn produce the item on the lathe.

Students are expected to develop an understanding of CAM equipment, the care and use of the Apple Computer, the fundamentals of developing a part program, and by using practical math applications to write a program for the metal part to be produced. Also included is a study and use of a computer program which allows the students, by using a mouse, to draw the part on the monitor, have the computer write the program for that part, and then produce the part on the computerized lathe. A total of 33 students will experience this CAM class this school year.

Also in 1985, Plainfield High School students were introduced to CAD which is a drafting program based upon the use of microcomputer programs. This course provides students with a comprehensive introduction to Computer Assisted Drawing (CAD)

and detailed drawings on the computer. The following topics are introduced: Main menus, modifying, window, dimensioning, hatching, setting up a grid, text, line style, absolute impact, polar drawing, relative impact, and the use of the colored plotter. We currently have 16 students in the CAD class. Samples of the drawings produced in our CAD class will be on display after the presentation.

Two fine staff members named Tom Baker and Steve Tunell, both veteran teachers, volunteered for the CAM/CAD courses, and they attended in-services throughout the Northern Illinois area in preparation for the courses. We are confident that these academic/vocational programs will provide our graduates with the manufacturing and drawing technology which will prepare them for the job market of the future.

Three microcomputer programs are offered in the academic areas of business education, mathematics, and English. Each make a major contribution to the preparation of our students for the work world whether or not it is preceded by a college education.

Business Laboratory

Our Microcomputer Applications course is a one semester, hands-on computer literacy course designed for students interested in learning Apple Computer capabilities. Students from all grade levels who have little or no previous computer experience benefit from this course for which there are no pre-requisites. Students learn correct keyboarding techniques,

introductory programming, basic graphics, word processing, data base management, and utilization of software programs.

Samples of the course objectives for the Micro Applications course are the following:

1. The student will be able to produce straight-copy speed of 25 words per minute with an accuracy level with no more than two errors per minute.
2. The student will be able to demonstrate knowledge of data base management by setting up assigned filing systems utilizing at least two different data base software packages.
3. The student will be able to demonstrate knowledge of word processing on the computer by writing material presented to him/her.
4. The student will be able to demonstrate his/her ability to program in BASIC.

Our Applications course complements and extends the basic microcomputer knowledge acquired by our students in the grade schools and junior high.

Computer Programming Laboratory

Our second microcomputer program is a three-level sequence in computer programming. This sequence was developed in conjunction with consultants from the University of Illinois in Champaign, one of the most prestigious microcomputer programs in the country.

The introductory programming course entitled BASIC I is designed to provide an introduction to computers and to computer languages which will enable students to solve scientific and mathematical problems. This course is designed for those students who are interested in the field of computer technology. The microcomputers used in BASIC I are Apple II GS's and IBM's. The content includes a listing of and background of machines in conjunction with an introduction to programming. The structures taught in BASIC I include looping, decisions, input, output, calculations, subroutines, arrays, files, and some elementary graphics.

Our PASCAL course provides the same elements as our BASIC I course in PASCAL using Turbo on IBM and Kyan PASCAL, TM1, and Apple PASCAL on Apple II GS's. Structures, functions, procedures, and Turtle graphics are integral elements in PASCAL.

Our Advanced Computer Data Structures Class is designed for inclusion in our advanced placement sequence along with calculus, biology, chemistry, and physics, but we are not quite there yet. This course will teach the techniques and uses of Stacks, Queues, Trees, and Revision.

Each of our programming courses is designed to teach the skills of programming in the context of problem solving. This blending of skills prepares our college preparatory population for both the academic and professional "arenas".

Writing Laboratory

Our third microcomputer program is also our newest. Over the course of the past two years, interest has developed in the use of the micro for the composition components of our English program. The composition phase began slowly in instructional classes but as of this semester, we have a lab designed for the exclusive use of our composition students. The lab is used by students in our English 10 Honors, English 11 Honors, English 12 Honors, journalism, and practical English courses. For example, our English 10 Honors students are responsible for the mastery of five elements: the Apple Works Program, the entering of Madame Bovary essays on the computers, the use of the Sensible Speller, the use of the Writers' Helper, and the use of the English Achievement PSAT Test Preparation. Samples of student comments on the composition components include the following:

> "Using the word processor made it easier to write the essays. We could spend more time in revising rather then writing for three days."
>
> "It gave me a good idea of the grade level on which I write. I have always wanted to know!" (The Writers' Helper)

"It was interesting, and I am sure that it will help when I take the ACT" (English Achievement Programs)

Although I have highlighted the honors sequence, the micro is as effective a tool in our other courses as it is in this program. In addition, the lab is available before, during, and after school for use by individuals and groups who effectively utilize the micros to enhance their composition skills.

Science (Advanced Placement) and Band Technology Utilization

Several of our academic classes incorporate the micro into their classroom instruction. Three examples of these courses are physics, chemistry, and band.

The advanced placement physics instructor uses the micro to store test questions which may be printed for student worksheets, quizzes and tests. The instructor also uses the computer to run programs which review major ares of physics and to work additional problems on a given topic. We provide programs on mechanics, statics, electricity, magnetism, waves, light thermodynamics, and atomic physics.

The computer is also interfaced with laboratory equipment to perform numerous experiments. Some of the experiments which involve computer interfacing include the study of: linear motion, kinematics and dynamics, rotational motion, momentum, centripetal force, free-fall, light intensity, the speed of light

and sound, and simple harmonic motion. Events may be timed with the computer with an accuracy of 1/10,000 of a second. Analysis of experimental data is facilitated by the computer with the use of graph plotting programs.

The advanced placement chemistry instructor uses the computer to record and to graph data during experiments. Our micro experiments include the following:

1. Molecular mass of a solid by freezing point depression.
2. Titration of a weak acid.
3. The cooling curve.
4. Basic ph measurements.
5. Analysis of antacids.

In addition, we provide chemistry tutorial software for students who need practice or additional instruction. During the fourth quarter, our advanced placement chemistry students are required to develop a program for a physical chemistry problem which involves graphing and first and second order derivatives.

The band instructor has also begun to develop software for instructional purposes. In addition to several programs on records and inventory, he has provided a "Fundamentals of Music" program which evaluates students who do individual work on intervals, scale, rhythm, and key signatures as a part of the Language Study Software disks.

In summary, these three fine instructors are only a few of the Plainfield High School personnel who use and will use the

computer to strengthen already exemplary programs.

Teacher/Divisional Chairperson Uses of Technology

The final phase of my presentation deals with the uses of the microcomputer by our divisional chairpersons, each of whom is responsible for curricular work, budget preparation/monitoring, daily operations, and approximately eight teachers.

The Fine Arts Department uses the micro for both uniform and instrument inventory. The director also uses a program which can "fit" the uniforms to the students. Several of the chairpersons use the word processor for all departmental course objectives and outlines, for departmental budgets, and for textbook lists/inventories. Spreadsheets also help document budgets and grades. Other chairpersons send letters of commendation, and make lists of supplies and records. This use of the computer eliminates much of the time-consuming administrativia which provide the chair-persons with more time to deal with significant curricular and staff needs.

In closing, I can state with confidence that the microcomputer has already had a significant and positive impact on Plainfield High School programs in vocational areas such as CAM and CAD; in laboratory experiences in business, mathematics and composition; in academic courses such as band, chemistry, physics, and English, and in sundry administrative functions! I

am also confident that the purposes to which we put the micro will grow markedly in future years.

At this juncture, I am pleased to introduce Mrs. Eileen Diercks who will introduce you to the myriad media uses of technology in our high school media program.

MEDIA CENTER ENHANCEMENT: PLAINFIELD HIGH SCHOOL

The purpose of the media program in our district is to support the teachers' classroom instruction and the students' research projects, as well as to extend the students' experiences beyond the classroom and to provide recreational reading opportunities.

VCR Utilization

Beyond the traditional role of libraries which have historically provided written materials to support the high school curriculum, our media centers have branched out to include all kinds of audio-visual materials, including some of the latest technology. Besides the more conventional role of filmstrip projectors, 16 mm projectors, and record players, our media services have expanded to include video cassette recorders, cameras, computers and modems, and compact discs.

The usage of the video cassette recorder has greatly expanded in our school district in the past five years. Because of the heavy usage of this equipment, we just recently acquired three more videocassette recorders and monitors making a total of 14 in our high school building.

Our teachers use the videocassette recorder and camera to go beyond the purchased cassettes to individualize this medium to their particular situation. Projects centering around units in literature such as mythology and drama are taped and used in the classroom setting. Speech classes and the speech team use the VCR and camera to tape presentations for the purpose of

critiquing the students' performances. Concerts, plays, musicals, and athletic events are recorded for later play-back and study. Featured speakers and exhibitors who bring their expertise to our district, such as Madeline Hunter, scientists participating in our Saturday Scholars program, and vendors in our computer software fair are recorded for future reference.

Grolier Electronic Encyclopedia

This past school year, our district purchased The Electronic Eycyclopedia which is a revolutionary new reference tool that merges the latest developments in information storage and retrieval technology with the long-valued reference source of information -- the encyclopedia. The Electronic Encyclopedia is made up of three components: the electronic edition of Groliers highly acclaimed Academic American Encyclopedia, Activenture Corporation's powerful Knowledge Retrieval System, and the CD-ROM storge retrieval system. Together they bring to the desktop the realm of worthwhile knowledge traditionally associated with general encyclopedias and the computing power formerly reserved for remote mainframe computers. We run our electronic encyclopedia on an IBM-XT computer with a Philips compact disk player.

The Electronic Encyclopedia is set up at a desktop in our high school media center. It is available for all students to use. Student response has been positive, as the students seem to find this new medium fascinating and intriguing. Once the system

is booted up, students like the quick response of the search. There is something curious about getting the text of a book on a screen and then printing it out. We have found that all students with all levels of capability have found The Electronic Encyclopedia useful. Students use the encyclopedia for term papers, speech topics, travel logs, and general interest.

Our purpose in using this form of the encyclopedia is not only to provide students with quick access to definitive factual information and to provide a good starting place for further research by isolating key concepts, outlining the structure of the subject, and directing the user to more specialized primary and secondary sources of information, but also to introduce them to the basics of on-line searching without the expense of going on-line and using the telephone. By teaching students search strategies, they will be able to locate good sources of information in a quick and efficient manner when they do encounter on-line sources of information. Since many of our students are in the college preparatory program, we feel it is necessary for them to be able to locate sources of information which are either computerized or are located in a data base. In addition, we are finding this type of knowledge retrieval is becoming a necessity for all levels and kinds of students.

Video Encyclopedia of the Twentieth Century

This year, we added The Video Encyclopedia of the Twentieth Century to our media center resources. This is a definitive

collection of motion picture film and videotape recording of the social, political, and cultural history of the twentieth century. The researchers put all of the accumulated tape and film on two types of media -- laserdisc and videotape. We purchased the laserdisc format and each disc is divided into chapters similar to the way most books are arranged. This arrangement makes it very easy to find the wanted footage. The two-part index is arranged alphabetically by subject and also by a daily log.

At the present time, our social studies teachers plan to use this reference source to show their students selected events in history so that students will be able to see actual people and the environment in which these events took place in order to achieve a better understanding of the causes and results of various events in our history.

Turner Broadcasting Project

Last spring, our school district joined with over 30 districts nation-wide to become a pilot school for the Cable Network News-ITTE project. After overcoming the mechanics of getting set up with a modem, a subscription to Compu-Serv and learning how to use a modem, we were able to go on line and retrieve the teaching guides. Since our schools were not equipped with cable, it was necessary for our teachers involved in this project to either videotape the cable network news program themselves or to find another teacher who would be willing

to tape it for them. We used the program in our junior high school and in our senior high school.

The teacher in our junior high school is a social studies teacher, but she emphasizes that the program "...can be used with any subject and/or discipline in the school." In her class, she has used the "World Report" as a current events approach to social studies. The students view the segment on the VCR after which the class discusses the geographical position of the countries or cities in the world report. Once the class has determined the position (location) of these countries or cities, then the discussion turns to what kind of problem caused this segment to be on the news; i.e. natural disasters, political strife, etc. As a concluding activity at the end of the year, these classes drew some conclusions as to where most of the political problems occur and whether natural occurrences have anything to do with the earth, its movements and structure.

In our high school this year, the News Access project is being used in a current affairs class. The teacher indicates that the students are very positive about this project and look forward to receiving an update on several very serious happenings in our world. In recent days, they have been following closely the Robert Bork nomination, hearing and results; the Persian Gulf events and U.S. involvement; the presidential candidates, both Republican and Democratic; the stock market traumas; and the

survey on The Right To... which was used during the study of the U.S. Constitution and the Bill of Rights.

Computer Usage for Library Management

In the past few years, computers have become almost common place in the administrative tasks of our media centers in our district. The data base of Appleworks is being used to keep track of film rentals, periodical holdings, equipment inventory, book orders, and to provide a current and up-to-date listing in the form of an audio-visual catalog for teachers to use. The spreadsheet is being used to keep an up-to-date accounting of the budget of the five schools in our district, according to the various accounts. Word processing is being used to create newsletters and memos, as well as overdue notices to students.

Two years ago, our junior high school computerized their circulation system using Folett's Book Trak system. We are considering the possibility of putting our high school circulation on computer and are also studying the feasibility of having an on-line catalog and using some on-line data bases for additional reference resources. We have a program to do catalog cards as we do our own processing of materials at the district level for five media centers. We also plan to create an annotated computer software holdings catalog on the computer for easy updating and easy access for teachers.

In our media centers, we currently have the following equipment for students and teachers to use before, during and

after school: three Apple IIe computers, the Grolier Encyclopedia which runs on an IBM-XT and compact disk, a laser disk player and monitor to run the Video Encyclopedia of the Twentieth Century, in addition to filmstrip previewers and cassette players. An Apple IIe with a ten megabyte Sider hard disk drive is used for library management operations. In the district media office, I use an Apple IIe with duodisk drive.

We are in the process of having cable installed in all of our schools, and we hope to use this technology in a variety of ways including the possibility of doing some television programming in the distant future.

SUPPORT SERVICES AND EXTRACURRICULAR PROGRAMS:

PLAINFIELD HIGH SCHOOL

Support services and extracurricular activities are an integral part of the educational experience at Plainfield High School. These services and experiences exist to enhance the academic performance of each student as well as to provide holistic experiences for individual growth.

Computer Club

In 1985, when students approached our computer teacher Mike Salisbury with the idea of starting a computer club, he became their advisor. The first project the computer club was involved with was BBS (Bulletin Board System). The program was student operated and provided a programming experience. The computer club pays their own phone bill and earns their own money to buy equipment.

The club joined Apple Computer Clubs of America to give students additional experiential opportunities. To gain additional programming experiences, the students compete in local and national computer contests. Competition sites have included Illinois State University and the University of Wisconsin-Parkside. The club is beginning activities which interface with computers. Students recently built a light pen, and they are looking for other projects of a similar nature.

Vocational Guidance

The RCA Colortrak Stereo Monitor and Laser video disc system provides an excellent visual tool for exploring post-secondary

opportunities. The system was provided by a joint agreement between Plainfield High School and Info Disc Service and includes financial aid overviews, approximately 200 college reviews, limited career reviews, and a short segment on preparing to take standardized tests. Many more disks are available at cost.

The GIS computer-based system provides information about occupations, two-year and four-year colleges, graduate and professional schools, and sources of scholarships and financial aids. The information is highly accurate and current, in that it is updated every six months.

The Occupational Information File contains 1,025 primary occupational listings with reference to approximately 2,500 related jobs. Information is available concerning the kind of work involved in an occupation, how much education or training is needed to qualify, what aptitudes are required, working conditions, salary ranges, and more.

The Armed Services Occupational Information File contains basic information about more than 100 occupations in the Armed Services. The Two Year College Information File and the Four Year College Information File let users explore information about more than 3,400 colleges, universities, and technical institutions. Information includes programs of study, location, size, costs, accreditation, national test scores, athletic programs, and scholarships, special services, campus activities and more.

Student aides have been trained to run the GIS system each period of the day. It is a vital resource that has assisted us in helping students to develop post-secondary plans.

School Accounting

The activity fund for the high school is now being handled by a number of computer programs. Two of the programs were written by Mrs. Traina, a member of the school support staff, who holds an Associate Degree in Computer Science. The third program is an Activity Fund Accounting System. This system facilitates the logging of all receipts, encumbrances, and disbursements. The system automatically computes all account activities and prepares monthly checks.

The other systems show cash balances for the previous month plus the new monthly cash balance. Bank reconciliation is also completed by the program.

Mrs. Traina emphasizes the importance of paralleling the old system and the new system. Both the accounting functions and the check writing system have been paralleled with the previous systems. She finds the advantages of the new system to include efficiency and the ability to find errors more easily. She is able to keep better records and print individual copies of funds for all involved parties.

Music Field Show

Pyware software helps band director, Ed Jones, prepare half-time show designs for our marching band. The software helps

organize the show by drawing the form of the show following the input of various elements and data. By mathematical computation and by animation, Mr. Jones is able to see the transition or flow from one set to the next. Any problems can be seen on the screen and corrected before he teaches the band. The computer also allows viewing of the animation from different angles, including the overhead shot or perspective view.

Finally, the computer allows Mr. Jones to print out his charts perfectly. They are totally accurate and ready for duplication so that each student can have his/her own personal copy of the entire show.

Athletic Conditioning

The Strength Disk Computer Software package helps individualize strength training workouts for athletes at Plainfield High School. The program has the capacity to set up individual programs for up to 800 athletes. A Special Sport Disk provides predetermined programs that have phase and cycle files already set up. The phase file consists of three components: the number of sets you wish to employ, how many repetitions you want to do on each of those sets, and the intensity for each set. The cycle file also consists of three components: the days you wish to lift, the load intensity, and the number of weeks/phases in each cycle. There are both in-season and off-season programs which are based on the Nebraska Way philosophy.

Yearbook/Newspaper

The yearbook staff coordinates yearbook preparation with Taylor Publishing from Dallas, Texas. The staff recently met with representatives of Taylor Publishing and IBM to discuss use of programs for the current yearbook. Staff members plan to use Type Vision and Index Vision this year to prepare all headlines, sub heads, body copy, captions, and folios for the yearbook. The Index Vision provides a much more rapid and accurate indexing of all students in the yearbook.

All of the above information is stored on a floppy disk which is sent to the publisher along with the quad pack of layouts. Although the yearbook staff has had some "transition difficulty" in adjusting to the new system, they believe that the use of the new programs will soon lead to greater time efficiency and increased accuracy in student indexing.

The word processor is the primary tool of the school newspaper, The Fielder. All copy is prepared from the Appleworks program disk. In addition, the staff members use Multiscribe to prepare all newspaper headlines. Editors collect the disks and transfer copy to one main Fielder disk. This disk already has columns and options built in to match newspaper layout. Once the copy is printed, it is taken to the local newspaper for printing.

DISTRICT SUPPORT/VOCATIONAL ALTERNATIVES

Administrative Office

District technology utilization is apparent in many ways. Our business operations utilize a large outside commercial company for computerized payroll, a Burroughs B930 minicomputer for most business operations (as well as school report cards), and a series of IBM compatible microcomputers for word processing and for other educational tasks. The Burroughs computer contains multiple terminals in the Administrative Center and in several school offices.

Specifically, our office (which is staffed with three administrators and seven secretaries/bookkeepers) contains five AT&T 6300 microcomputers with NEC printers (one P4XL and four P7), all networked into a Compaq Deskpro 386 with an Okidata 2410 printer. Each of these units is equipped with a hard disk for storage of confidential information. Our office also contains an Apple IIe microcomputer, a Macintosh SE microcomputer, and a Scantron scoring machine.

WILCO Area Career Center

Plainfield District 202 is one of five school districts that jointly owns and operates the WILCO Area Career Center. In the past, the State of Illinois has provided reimbursement for capital equipment up to $.70 on the dollar for such centers. As a result, our five school districts have equipped this Center with state-of-the-art equipment. It is in operation literally day and night with program for high school students, college

students, and adults in the Job Training Programs administered by the Private Industry Council. From the many programs offered at the Center, we will briefly highlight technology utilized in four of these programs.. First, you can see that our pre-school training program acquaints pre-schoolers with computer software. This program offers day care to area children while providing training for high school students to work in day care centers.

Our electronics program, by necessity, focuses on a variety of electronic technology. Students may gain skills in trouble shooting such electronic devices as audio equipment, television, and microcomputers. The microprocessor chip lends itself to a variety of applications which include robotics. A Hero I Robot, assembled by students, utilizes the 6800 series eight-bit microprocessor with appropriate input/output and sensing interface circuitry. It is used to demonstrate principles of voice synthesis; robotic arm manipulation; light, object, and sound sensing and response; and principles of interfacing.

In the auto shops, students gain experience with electronics common to the automotive industry. This includes the "Snap-On Computerized Wheel Balancer" equipped with computer circuitry utilizing advanced sensing systems that display both dynamic and static imbalance during a single spin cycle, and "Snap-On Starting and Charging System Tester". This systems tester combines the functions of an ammeter, voltmeter, and adjustable carbon pile in testing batteries, starters, solenoids

alternators, voltage regulator switches, and their related circuitry. The LCD displays provide individual amp and volt readings. The amps and volts bargraph displays graphically test measurements and fluctuations in these measurements.

The word processing area is truly an "electronic office" using exclusively state-of-the-art electronics equipment including 20 Xerox Memorywriters, three IBM Displaywriters, one IBM Wheelwriter, two Laniers, and three IBM Personal Computers. A variety of software is available to allow students a variety of experiences. The laboratory also contains a central dictation system accessible by any phone in the world to process information for the Center staff.

An IBM Displaywriter shown here is one of the most popular word processors used in business today.

The data processing area contains the IBM System 36 mainframe computer with 15 terminals and two IBM personal computers. Students gain skills in data entry, computer operation, and programming. Job placement statistics indicate that WILCO classes provide strong vocational alternatives for high school juniors and seniors.

Plainfield students and staff also have the support of the Tri-County Education Service Center which is involved in some exciting technology projects in partnership with the Plainfield Schools.

REGIONAL SUPPORT: EDUCATION SERVICE CENTER

The Plainfield School District is one of 48 districts served by the Tri-County Education Service Center, a regional service center. Educational service centers were established in Illinois in January of 1986. Their major functions are to provide regional support in the areas of staff development, curriculum development, gifted education, and technology. The Tri-County ESC serves school districts in three "collar" counties around Chicago thus including urban, suburban, and rural communities.

The Tri-County ESC has found the Plainfield School District to be a particularly strong leader in the region and the State in the implementation of technology. The district demonstrates the effective uses of technology in support of classroom instruction, resource materials, extracurricular activities, and school management. The ESC and the Plainfield School District have already developed a number of cooperative programs relative to the implementation of technology in schools.

Scantron Test Scoring

Plainfield is one of three districts in the region which has already established a computerized test scoring system for district-level tests. The State of Illinois recently passed a number of curriculum and assessment reforms requiring districts to develop their own curriculum and assessment system. Plainfield had already begun to implement a computerized system for scoring tests on the Apple IIe computer. This system is used

to assess student performance on a series of district-level language arts and math tests throughout the district.

Since beginning this testing program, the ESC has provided technical support which has reduced the processing time for these tests by two thirds. The ESC held an assessment conference in February and provided Plainfield with information on systems which will expand the capabilities of their current assessment system to meet the district's testing needs in light of the State mandates. Currently, Plainfield is considering purchase of a larger system or of participation in a cooperative of districts for a joint test scoring system. All of this cooperation has developed through the participation of the district in the assessment conference and a regional curriculum development support group established by the ESC.

Test Item Generating Utilizing the Macintosh

As part of the assessment conference, the ESC arranged for a number of school districts to pilot various computer assessment systems. Plainfield, already having a test scoring system, was interested in a test generating program. Currently, Plainfield is piloting Measure Up, a test generating system for the Macintosh computer. The district has already input over 2,000 math test items, including graphics, and is printing them out in ready-to-use booklets. The program provides up to nine forms of each test by scrambling answers and/or questions.

Based on the results of their pilot, the Plainfield School District will present a summary of the software at the next Assessment Conference in February.

Microwave With Video

The ESC is in the process of purchasing a satellite dish which will be used to videotape programs from around the world. The first phase will be designed to provide videotapes of current news programs of foreign countries to be used in foreign language classes. Eventually, the ESC intends to establish a microwave system to distribute the satellite programs directly to individual school districts. Plainfield is already effectively using videotape and will obviously be a major user of the satellite programs.

Software Preview

When the Education Service Centers were established in Illinois, they were required by law to absorb the Computer Consortiums already in existence. As a result of this merger and recent agreements with various software companies, the ESC has over 3,000 software packages for preview by districts in the area. Much of the software has been donated to the ESC by publishers who see the value of preview copies for use by 48 school districts.

Plainfield has been using this service very effectively as they work to develop new curriculum which integrates computer software. The ESC has provided many pieces of software on a two-

week checkout basis for the schools to preview before they purchase the software. Besides just providing software for preview, the ESC has provided technology consultants to assist in implementation of software and training of teachers in the Plainfield Schools.

Software Piloting

Plainfield has continued to be a leader in technical applications. In that role, Plainfield has been committed to piloting a number of systems for use in their schools. Just recently, Plainfield has agreed to pilot a new primary level reading software series even before it is available on the market. This new software uses Apple IIe computers equipped with voice synthesizers to teach phonemic, sight word, and comprehension reading skills. It also includes a "talking" word processor. The software will be piloted throughout this school year, and the results will be used to determine the effectiveness of this program in suburban/rural schools.

Dial-Up Network and Software Preview

The ESC is already a part of the Illinois State Board of Education PLATO network which provides up-to-date information to each of the 18 ESC's across the State. The network is used to provide a means to collect data as well as to provide information.

Currently, this information is distributed to schools through newsletters for each ESC. Early next year, however, the

Tri-County ESC will establish a network through which districts can use modems to connect their computers. This network will be used by school districts for three functions: to receive information from the State, to receive information from the ESC, and to use as a demonstration network for students in technology applications classes. Plainfield has already expressed its interest to be the pilot site for the initial phase of this network.

The Plainfield/ESC Link

Overall, the cooperation between the Plainfield Schools and the Tri-County ESC has led to important results for both the district and the ESC. With a technologically progressive district such as Plainfield in our area, not only has the ESC benefited but also the surrounding districts. The technological applications in Plainfield are used as a model for other districts as they begin to implement technology. The ESC appreciates the past support from Plainfield and looks forward to the new directions that the ESC and Plainfield can follow together in the future use of technology.

SUMMARY: A LOOK TO THE FUTURE

Our presentation began with the present with one eye looking to the future. Just as our elementary and junior high school computer curricula have undergone revisions each year, so will Plainfield students continue to profit by our expanding utilization of technology.

At Plainfield High School, we expect to put in place an automatic calling machine during the second semester which is similar to those demonstrated at a recent ITTE conference. As our Video Encyclopedia of the Twentieth Century is new, efforts will be made to increase its utilization.

Next year we will see increased science department computer software, additional English classes using the writing laboratory, the cable connection complete with possible local TV programming, and participation with the Tri-County Education Service Center Dial-Up Network and foreign language microwave video program.

Within three years, we predict much more use of interactive technology related to specific subject areas, independent learning packages that students can take apart from regular coursework, and increased utilization of national media programs such as Turner Broadcasting.

Within five years, we predict students will be linked to Plainfield High School learning modules, Tri-County Education Service Center enrichment courses, and Joliet Junior College coursework which they can access at home. Further, we predict

they will be able to recall assignments, to take make-up tests, and to enter assignments from their home computers directly to Plainfield High School.

The unifying focus behind our plans will continue to be the potential technology brings to increasing student success. We believe that careful utilization of technology provides students with a head start (or step forward) in college or in vocations. Our "one step behind" which was mentioned, in opening remarks is a calculated step to provide us with some perspective so that we can focus our limited resources on the utilization of technology which will result in our students being "one step forward".

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